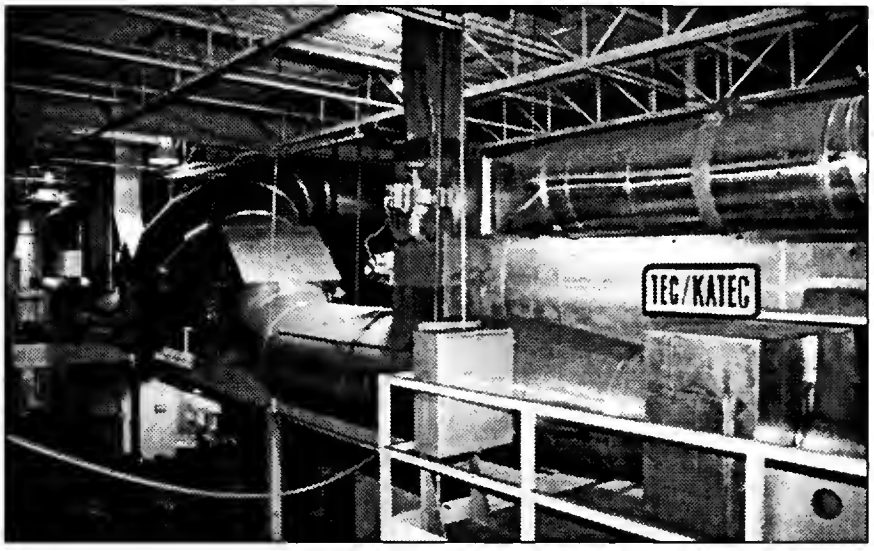
Katec Thermal Afterburner

"We at St. Joseph Printing have been committed to strict environment responsibilities from the start. The capital expenditures we were facing for this system did not impede the decision-making process. R & D and efficiency were our ultimate reasons for purchasing the thermal incinerator. We are presently running a dual thermal incineration system with a Certificate of Qualification issued by the Ministry of the Environment which sets absolute compliance standards. We feel very comfortable and demonstrate annually through periodic tests on emissions at source that our responsibility to the environment and statements are genuine."

Steve W. Morrison
Vice President of Engineering and Technology Services
St. Joseph Printing, Concord, Ontario



The afterburner uses the fuel content of the solvent vapours to reduce natural gas consumption.

THE COMPANY

St. Joseph Printing is a Canadian company established in 1956. The company's main business is web-offset fine printing. Its products include car brochures, catalogues, income tax information guides and various department store flyers and newspaper inserts. In the last five years the company has increased its sales more than 30 per cent, each of the last three years to a volume of $100 million. The company now ranks as one of the top three printers in Canada.

With dramatic volume expansion, the company outgrew its original 5,575 square-metre building. A new 20,440 square-metre facility was constructed in 1990 in Concord, Ontario. St. Joseph's Board of Directors set energy efficiency and conservation as design and construction priorities.

THE CHALLENGE

A number of support process systems were required to service the company's presses, including a pollution abatement system to handle solvent-laden gases from the drying process of the heat set web printing process. The company needed a system which was energy efficient and environmentally dependable. Its existing catalytic system for emissions control was costly to operate and had difficulties meeting the environmental standards.

THE TECHNOLOGY

After looking at three different emission control systems specifically for the heat offset printing process, the company chose the KATEC Model 2-110 Thermal Afterburner, primarily because of its exceptional efficiency in hydrocarbon destruction and its reliability. It was also the most environmentally friendly system available (for emissions and waste) and the most energy efficient.

The KATEC Afterburner works in conjunction with dryers on the printing presses. The presses dry and set the ink. To reduce objectionable exhausts, the gas byproduct formed by waste ink, which is solvent-laden gas byproduct is incinerated at high temperatures. Consequently, emissions are 99.8 per cent odor-smoke-and-hydrocarbon-free.

Energy consumption in the incinerator is minimized by:

- the use of a highly effective heat exchanger to preheat the incoming exhaust stream with energy extracted from the oxidized exhaust;
- utilizing the fuel value of the solvent vapors in the exhaust to assist in reaching the oxidation temperature;
- incorporating an automatic idle mode, minimizing fuel use during short press downtimes by lowering the exhaust flow through the incinerator;
- minimizing fuel use when running with less than maximum exhaust flows. If the exhaust volume from the process drops below the minimum needed, the recirculation loop of the KATEC makes up the difference by allowing air from the system outlet to bleed back to the inlet of the system;
- the use of a variable speed exhaust fan drive to minimize electrical consumption under varying exhaust flow conditions.

RESULTS

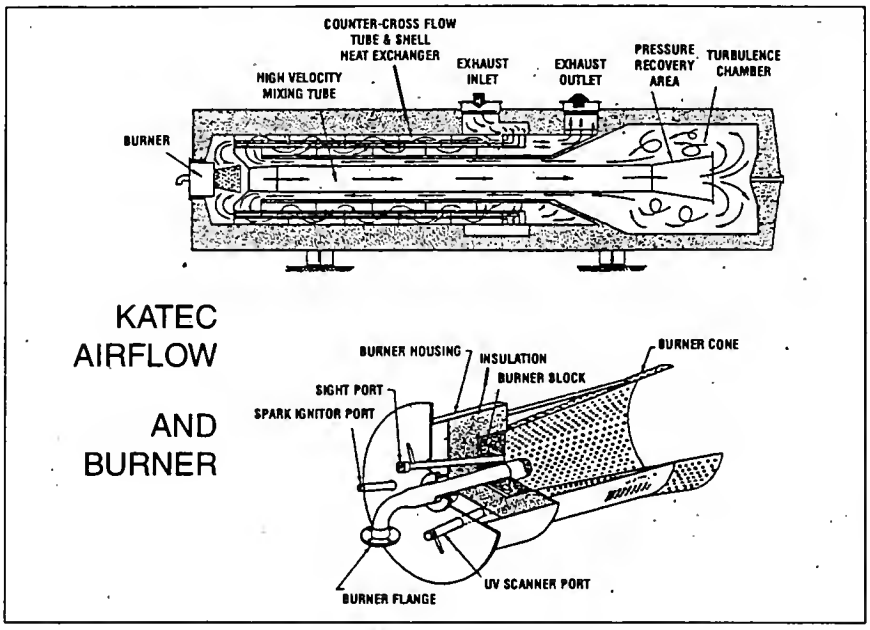
The company completed installation of the thermal after burner in the spring of 1991. The system has operated efficiently and reliably, with the exhaust emissions well within the environmental standards.

BENEFITS

The benefits of using the KATEC Thermal Afterburner include:

* Reduced natural gas consumption
* Use of unit's radiant heat for space heating
* Operation and maintenance cost reduction
* Reduction of electric energy cost

The projected annual savings are estimated at $94,200.



TECHNICAL

Model	KATEC 2-110 Thermal Afterburner
Manufacturer	TEC Systems
Volume	11,076 SCFM
Burner maximum	4,591,600 BTU/hr
Exhaust fan	100 HP
Operating temperature	1400 F
Destruction efficiency	99.8%

PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies located in Ontario may seek ministry/industry services which will help them to:

* reduce, reuse and recycle solid waste;
* clean up historic pollution effectively and destroy hazardous contaminants;
* reduce or eliminate liquid effluent and gaseous emissions;
* use energy and water more efficiently.

Equipment and service supply companies can benefit from the information provided on technologies identified for business development.

FOR FURTHER INFORMATION, PLEASE CONTACT:

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MINISTRY OF THE ENVIRONMENT SERVICES

For information on Ministry of the Environment assistance to industry, please contact the Industry Conservation Branch at (416) 327-1492, Fax (416) 327-1261.

For more project profiles and other publications, visit the ministry's website at http://www.ene.gov.on.ca

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